

Claims:

1. An apparatus for forming a refractory lining of a metallurgical vessel, the apparatus having an exterior dimension and comprising:
 - a) a plurality of struts defining an exterior perimeter, where at least one strut is
 - 5 an adjustable strut comprising a first rib adapted to move relative to a second rib along a first axis;
 - b) a plurality of panels covering at least a portion of the exterior perimeter, thereby defining the exterior dimension, the panels comprising at least two adjustable panels capable of relative movement as the first and second ribs of
 - 10 the adjustable strut are adjusted.
2. The apparatus of claim 1, wherein the apparatus comprises a plurality of adjustable struts.
3. The apparatus of claim 1, wherein the second rib comprises a substantial mirror image of the first rib.
- 15 4. The apparatus of claim 1, wherein at least one adjustable connector joins the first and second ribs of the adjustable strut.
5. The apparatus of claim 1, wherein a plurality of connectors joins the first and second ribs of the adjustable strut.
6. The apparatus of claim 1, wherein a plurality of braces connects the struts, the
 - 20 struts and braces forming a substructure;
7. The apparatus of claim 1, wherein at least one brace includes an adjustable brace, whereby the exterior dimension of the apparatus may be changed along a second axis.

8. The apparatus of claim 7, wherein a plurality of braces comprise adjustable braces.
9. The apparatus of claim 4, wherein the connector comprises a mechanical fastener selected from the group consisting of a bolt, pin, screw, rivet, tack weld, and
5 adhesive.
10. The apparatus of claim 9, wherein at least a portion of the first and second ribs form an overlap area and the mechanical fastener joins the overlap area.
11. The apparatus of claim 10, wherein overlap area defines a hole in both the first rib and the second rib, the holes capable of being aligned, and the mechanical
10 fastener comprising a bolt that passes through the aligned holes, thereby fixedly securing the ribs together.
12. The apparatus of claim 11, wherein at least one hole is an elongated oval.
13. The apparatus of claim 1, wherein an intersection of two panels forms an overlapping joint.
- 15 14. The apparatus of claim 13, wherein the overlapping joint slants so as to avoid obstructions during removal of the apparatus from the vessel.
15. The apparatus of claim 1, wherein the apparatus includes a bottom panel secured to a bottom of the apparatus.
16. An adjustable form for placing a refractory lining of a metallurgical vessel, the
20 form having two ends, a length, a width, and comprising:
 - a) a plurality of adjustable struts along the length, each strut comprising a connector slidably joining a first rib and a second rib of the strut, the struts defining an exterior perimeter;

- b) a plurality of side panels spanning the length; and
- c) at least two overlapping end panels at each end and spanning the width at each end, the end panels adapted to slide past each other as the exterior perimeter changes.

- 5 17. The adjustable form of claim 16, wherein a plurality of braces is oriented substantially parallel along the length and the braces join the struts;
- 18. The apparatus of claim 17, wherein the form includes at least one adjustable brace, whereby the length of the apparatus may be changed.
- 19. The apparatus of claim 18, wherein the side panels overlap and are adapted to
10 slide past each other as the length changes.
- 20. The apparatus of claim 19, wherein the overlapping side panels form a joint adapted to avoid obstructions as the apparatus is removed from a vessel.
- 21. A method of lining a metallurgical vessel having an interior surface with a
15 flowable material using an adjustable form having an exterior dimension and comprising a plurality of struts, where at least one strut is an adjustable strut comprising a first rib adapted to move relative to a second rib, the struts defining an exterior perimeter, a plurality of panels covering at least a portion of the exterior perimeter, thereby defining the exterior dimension, and the panels comprising at least two panels capable of relative movement as the first and
20 second ribs of the adjustable strut are adjusted, the method comprising:
 - a) placing the adjustable form in an interior volume of the metallurgical vessel, whereby a space is created between the interior surface of the vessel and the exterior dimension of the form;

- b) adjusting the form to define the space;
 - c) placing the flowable material in the space; and
 - d) allowing the flowable material to set;
22. The method of claim 21, further comprising removing the form after the flowable
- 5 material sets.
23. The method of claim 21, wherein the space includes an undercut.